

COMPOUND-SEMICONDUCTOR CRYSTAL GROWTH METHOD

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Inventor(s): OTSUKA NOBUYUKI; others: 01
Applicant(s): FUJITSU LTD
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Abstract

PURPOSE: To enable a compound semiconductor crystal to grow at a temperature lower than conventional devices, and to improve the performance of a device using a hetero-junction by employing a phenyl compound of a constituent component making up the compound semiconductor crystal as at least one kind of a raw material gas.

CONSTITUTION: (C₆H₅)₃Ga (triphenylgallium; TPG) is used in place of (CH₃)₃Ga (trimethylgallium; TMG) and (C₂H₅)₃Ga (triethylgallium; TEG) and the like which have been employed as a gaseous raw material substance in a conventional atomic layer epitaxy method. TPG has a group having molecular weight higher than TMG and TEG, and is decomposed at a comparatively low temperature. Accordingly, crystal growth through the atomic layer epitaxy method can progress at a low temperature, a hetero-interface having steep band structure and an impurity distribution profile can be formed, and the performance of a device can be improved.